

Woodford Primary School



Mathematics Policy

This Policy was adopted and ratified by the Local Advisory Board of Woodford Primary School.

Signed Dated
Chair of Governors

Signed Dated
Head Teacher

Signed Greg Chantler Dated May 2020
Mathematics Lead

1. RATIONALE

At Woodford Primary, we see mathematics as a creative and highly interconnected discipline that has been developed over centuries, providing the solution to some of history's most intriguing problems. It is essential to everyday life, critical to science, technology and engineering, and necessary for financial literacy and most forms of employment. A high-quality mathematics education therefore provides a foundation for understanding the world, the ability to reason mathematically, an appreciation of the beauty and power of mathematics, and a sense of enjoyment and curiosity about the subject. This policy aims to encourage a love of these things both inside and outside of the classroom.

2. AIMS

The national curriculum for mathematics aims to ensure that all pupils:

- become **fluent** in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time, so that pupils develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately
- **reason** mathematically by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language
- can **solve problems** by applying their mathematics to a variety of routine and non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions

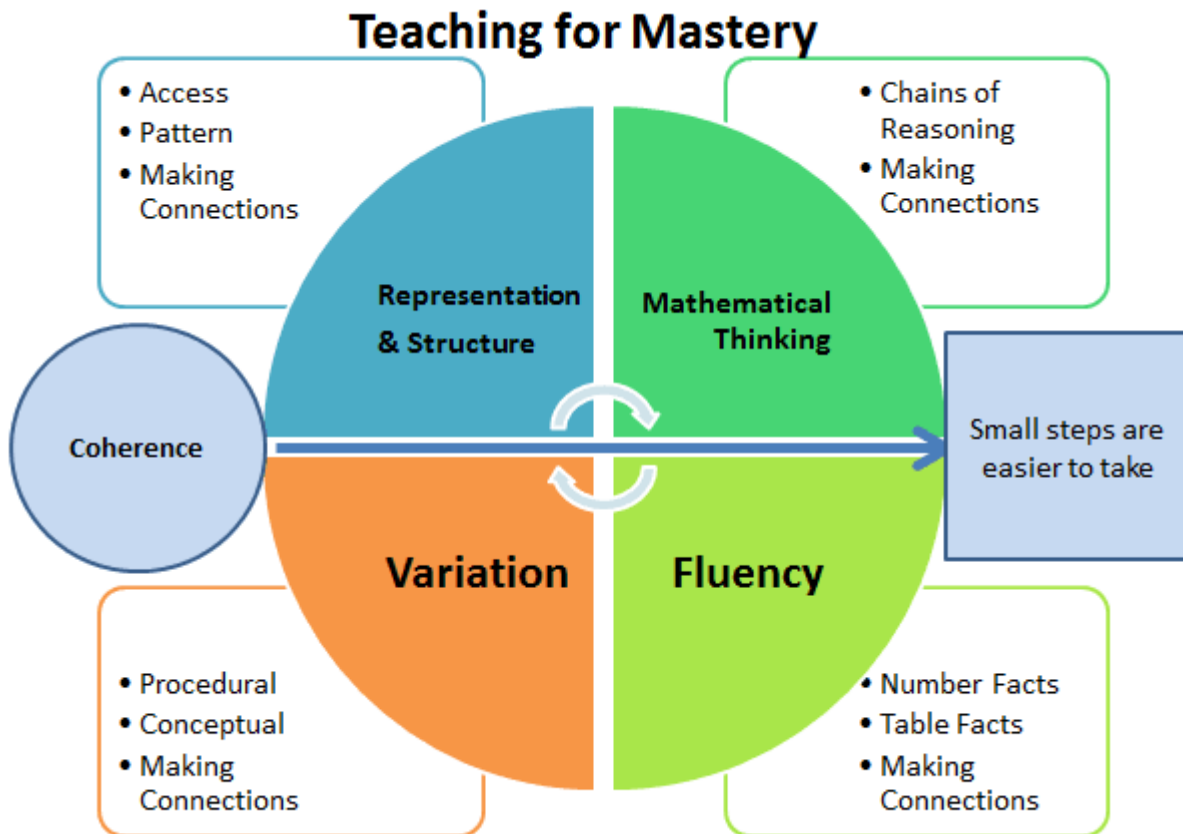
3. Statutory Requirement

Mathematics is an interconnected subject in which pupils need to be able to move fluently between representations of mathematical ideas. The programmes of study are, by necessity, organised into apparently distinct domains, but pupils should make rich connections across mathematical ideas to develop fluency, mathematical reasoning and competence in solving increasingly sophisticated problems. They should also apply their mathematical knowledge to science and other subjects across the curriculum.

The expectation is that the majority of pupils will move through the programmes of study at broadly the same pace but working at varying levels of depth. However, decisions about when to progress should always be based on the security of pupils' understanding and their readiness to progress to the next stage. Pupils who grasp concepts rapidly should be challenged through rich and sophisticated problems, which deepen understanding, before any acceleration through new content. Those who are not sufficiently fluent with earlier material should consolidate their understanding, including through additional varied practice, before moving on.

School Curriculum

At Woodford Primary we use a Teaching for Mastery (TfM) approach to the teaching and learning of mathematics. The 5 big ideas of TfM (coherence, representation & structure, mathematical thinking, variation and fluency) are fundamental to our approach.



To develop understanding in mathematics it is necessary to make connections not just between different elements of mathematics but also between different aspects of each element of mathematics, linking them to previous learning and existing understanding. Mathematics can be experienced through contexts, language, mathematical images/pictures and symbols. We encourage children to use what they know and understand rather than treating each area as separate and unconnected.

4. FOUNDATION STAGE

Teachers plan regular teacher-led sessions, incorporating elements of TfM where appropriate, using the Power Maths scheme to support this. Power Maths provides progression across the school and ensures coverage of Development Matters objectives. These sessions are increased from 2 to 3 a week in the summer term. Throughout the day, there are many opportunities for child-initiated learning in mathematics. A wide range of concrete and pictorial resources are available to children in the Foundation unit. Activities are planned into the continuous provision to allow children to consolidate skills taught in teacher-led activities and to promote interest. We also aim to help children understand and use numbers; calculate addition and subtraction problems; use and describe shapes, spaces and measures.

Mathematics: Number Skills

- Developing a growing understanding of numbers and problem solving, through stories, songs, games and play.
- Encouragement to subitise, count, estimate and order numbers.
- Beginning to use the vocabulary involved in addition and subtraction in practical activities and discussion.
- Becoming comfortable with numbers and use language such as 'more' or 'fewer'.
- Independently identifying mathematical problems based on their own interests.

Space, Shape and Measure

- To use mathematical names for 2D and 3D shapes.
- To describe their relative position e.g. behind.
- To order lengths, masses and capacities.
- To use everyday language to describe money, time and measure.

5. Written Methods

Although there are agreed written procedures, it is important to recognise that a child's mental fluency to solve calculations is at the heart of the curriculum. During their time at Woodford Primary School, children will be encouraged to see mathematics as both a written and spoken language. Teachers will support and guide children through the following important stages:

- developing the use of models and images to represent numerical activities
- using standard symbols and conventions
- use of jottings to aid a mental strategy
- use of pencil and paper procedures

Mental Mathematics

Daily fluency sessions throughout the school will give children opportunity to increase their mental fluency and learning of relevant number facts. Teachers will plan for these sessions using the expectations from the national curriculum. Physical manipulatives (eg. base ten, place value counters, tens frames) and representations can be used to help support these sessions.

Year 2 - 6 use TTRockstars to support the learning and practise of times tables (including related division facts). Foundation – Year 6 use NumBots to support the learning of addition and subtraction number facts. We encourage children to use these programs at home as well. Achievements are celebrated as a whole school.

Information and Communication Technology (ICT)

Calculators should not be used as a substitute for good written and mental arithmetic. They should therefore only be introduced near the end of key stage 2 to support pupils' conceptual understanding and exploration of more complex number problems, if written and mental arithmetic are secure. Teachers should use their judgement about when ICT tools should be used. Interactive TVs in classes will be used to support the delivery of lessons and interactive activities.

Spoken Language

The national curriculum for mathematics reflects the importance of spoken language in pupils' development across the whole curriculum – cognitively, socially and linguistically. The quality and variety of language that pupils hear and speak are key factors in developing their mathematical vocabulary and presenting a mathematical justification, argument or proof. They must be assisted in making their thinking clear to themselves as well as others, and teachers should ensure that pupils build secure foundations by using discussion to probe and remedy their misconceptions.

6. ASSESSMENT

At the end of each unit of learning, children complete an end of unit assessment. This allows learning to be revisited and consolidated before moving on to new learning. It also supports teachers in establishing progress made from the beginning of the unit. This information can then be used to identify any intervention needed as necessary.

Children will also complete termly standardised 'PUMA' assessments. Data is recorded and used, alongside ongoing teacher assessment, to judge children's progress and attainment against year group objectives. These combined assessment measures help to inform teachers whether each child is 'Emerging', 'Developing', 'Secure' or working at 'Greater Depth'.

Self-Assessment

Assessment for Learning is used across the school and pupils are involved in assessing their own learning. Daily lesson objectives are shared with children during teaching sessions. These are introduced as 'I can' statements. Pupils are given time to reflect on their learning. Peer assessment is also used for focussed reflection.

Feedback

The main form of feedback provided by teachers and teaching assistants to children is verbal feedback during lessons. We believe that children make accelerated progress when they receive 'live' feedback during the lesson; they can act on this immediately. Teachers and teaching assistants aim to visit every child in each lesson so children of all levels of attainment receive equal feedback. We aim to praise and encourage children and tick tasks which have been successfully completed. Mistakes and misconceptions are identified with a dot. Adults will discuss this with the child before they independently address this. Children respond in purple pen.

7. TARGET SETTING

Children have targets linked to their progress on NumBots and TTRockstars. These are designed to develop mental fluency and cover key objectives from each year group's curriculum. Progress through these targets are displayed in each classroom and successes are regularly celebrated.

8. THE GOVERNING BODY

Regular reports are made to the governors on the progress of mathematics provision and to our mathematics governor.

9. MONITORING

Planning is monitored by the leadership team and the mathematics leader. During the year, book scrutinies are completed with staff to ensure continuity and progression through the year groups. Learning walks are carried out by members of SLT/subject leader and pupil interviews are carried out during the year.

10. INCLUSION

We aim to provide for all children so that they achieve as highly as they can in mathematics. We will identify which pupils are achieving below expected progress. Details of intervention provided will be included on ISPs or class profiles. Children who are working at or above the expected level will also be identified and suitable challenges will be provided. However, we aim to provide opportunities for ALL children to access such challenges where appropriate. Higher attaining children might also have opportunities to attend events at Plymouth University or Heles School.

11. INTERVENTION PROGRAMMES

As an extension to quality first teaching, individual year groups and classes use focus group learning to support individual and group learning needs. The main form of intervention provided is 'pre-teaching', delivered by teachers. This gives struggling learners an opportunity to familiarise themselves with upcoming lesson content before the lesson and therefore increases their confidence in lessons. We feel this is a much more positive process than post-lesson intervention. This also allows teachers to adapt lessons for the whole class based on insights gained with children during pre-teaching.

12. ROLE OF SUBJECT LEADER

The subject leader should be responsible for improving the standards of teaching and learning in mathematics through:

Monitoring and evaluating:-

- pupil progress and attainment, feeding back to the SLT
- provision of mathematics (including planning, intervention and support programmes)
- the quality of the learning environment
- the deployment and provision of support staff

As well as:

- The continued professional development of teachers and teaching assistants
- Providing lesson support/delivery
- Taking the lead in policy development
- Analysing the impact of targets
- Purchasing and organising resources
- Keeping up to date with recent mathematical developments
- Creating and updating school action plans
- Liaising with mathematics governors

13. PARENTAL INVOLVEMENT

When pupils join the school in the Foundation Stage, parents are invited to an information meeting to share with them how we teach mathematics and early numeracy skills. Homework is also an opportunity for children to reinforce and share their learning with their parents. Parents are invited to a 'meet the teacher' evening in the autumn term where expectations for mathematics in each year group are shared. They receive interim reports in the spring term which indicate whether their child is working at age-related expectations in mathematics and a full annual report in the summer term. The school website and class pages are also ways children can share their learning with their parents.

14. RESOURCES

The majority of mathematics resources are located in classrooms, with some less regularly used resources stored in a central base in the KS1 building. Resources such as base ten, tens frames, place value counters and bead strings/rekenreks are used on a regular basis.

Review Date: May 2022

Version & Date		Action/Notes	Review
1.0	April 2017	Reviewed by SLT & LAB	September 2018
2.0	September 2018	Review by subject leader	May 2020
3.0	May 2020	Review by subject leader	